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Cluster analysis: state unemployment trends during the recession

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In “The Great Recession and state unemployment trends” (*Economic Development Quarterly*, May 2013), William B. Beyers uses cluster analysis to shows that there is a strong relationship between the kinds of industries within a state and its unemployment trend. Not surprisingly, service-providing industries fared better than goods-producing industries during the Great Recession of December 2007–June 2009.

Structural change has been affecting our economy for decades as agriculture and manufacturing employment has given way to employment in service-providing industries. This article adds to the literature which shows that demand for service-providing industries is less cyclical than for goods-producing industries.

Using data from the U.S. Census Bureau and the Bureau of Labor Statistics (BLS) for the years from 1948 through 1980, Beyers finds that employment within service-producing industries, although still somewhat cyclical, tends to be relatively resilient. Beyers also cites other studies that provide proof of the lower volatility of employment in service-producing industries. He notes that these studies show there is less demand for goods and hence more unemployment during recessionary periods in industries that face strong fluctuations in demand, and there is a larger share of output—and therefore employment—in industries that face smaller fluctuations in demand.

To analyze state unemployment trends, the author uses a cluster algorithm that groups together states with similar unemployment characteristics, as determined by BLS data from January 2008 through June 2012. Using the average of unemployment rates, Byers places the clusters in order. When comparing the order of the clusters at the beginning of the Great Recession and again in 2012, he finds that the orders are unchanged. For instance, the cluster made up of California, Nevada, Michigan, Florida, and Rhode Island started the Great Recession with relatively high unemployment rates. By June 2012, these states still had the highest levels of unemployment in the country.

Byers found that clusters with a dependence on natural resources are not as strongly affected by recessions. In contrast, clusters that are dominated by manufacturing were especially hit hard during the recession before beginning a gradual recovery in 2010. Clusters with specialization of services—that is, a substantial portion of the state’s employment is in a particular industry—initially showed unemployment trends similar to the rest of the nation but then experienced relatively high levels of unemployment for a longer period. The states within the cluster mentioned above had economies partially dependent on one or two major industries—the gambling industry has a strong presence in Nevada, mining and energy industries dominate in Wyoming and Alaska, and tourism reigns supreme in Hawaii—and this cluster’s unemployment tended to be higher recently than at the beginning of the recession. While states may not be able to determine their industrial structures, the studies show that as economies shift more to services, states may have some influence over the composition of their industries.

Beyers notes that he is unaware of others using cluster analysis to study state industry structure and unemployment trends and asserts that cluster analysis could be useful in future research into the relationship between industry structure and unemployment.